OBSERVATIONS

ON THE

SCURVY:

WITH A

REVIEW OF THE THEORIES

LATELY ADVANCED ON THAT DISEASE;

AND THE

OPINIONS OF DR MILMAN

REFUTED FROM PRACTICE.

BY

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——neve hæc noſtris ſpectentur ab annis
Quæ ferimus. VIRG. Æneid.

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M,DCC,LXXXVI.

TO THE RIGHT HONOURABLE

LORD VISCOUNT HOWE,

FIRST LORD OF THE ADMIRALTY, &c.

MY LORD,

THE preſent ſtation you hold in the ſervice of your country as an officer and ſenator, your eſteemed profeſſional abilities and

knowledge of the marine department, and a name that has long been dear to every Britiſh ſeaman, point you out as the moſt conſpicuous character to patroniſe a work that has in view the naval and commercial intereſt of theſe realms.

FROM you, My Lord, in a particular manner, undertakings of this kind look for protection; and the period is now arrived, when profeſſional men, under Your adminiſtration,

niſtration, hope for a redreſs of thoſe complaints, that, by the conſent of all ranks, are allowed to be baneful to the welfare of our Navy.

IN the following Obſervations, by an induction of facts candidly related, I have endeavoured to ſhow, that a new doctrine on Scurvy, lately publiſhed by a learned Phyſician, now at the ſummit of medical preferment, is inconſiſtent with the real nature of the diſeaſe; and that his opinions are dangerous to be

be adopted, both in the prevention and cure. However I may have failed in this, I have ſufficiently proved, we are not yet to ſit down content with our knowledge of the diſeaſe, or think ourſelves arrived at the perfection of a ſcience, where the wiſeſt and oldeſt are ſtill at ſchool.

IF my attempt ſhould be the means of alleviating the diſtreſſes of that brave body of men among whom it has been ſo often fatal, or excite

excite others whoſe experience has been more matured with years and extenſive obſervation, I ſhall conſole myſelf with having offered my mite, as a tribute due that department in the Navy to which I belong.

I have the honour to be,

My LORD,

Your Lordſhip's

moſt obedient, and

very humble ſervant,

WOOLER, Nov. 16. 1785.

T. TROTTER.

INTRODUCTION.

PERHAPS no man ever became an author without ſome motive for his publication. "In every branch of ſcience," ſays Dr Cullen, "with reſpect to which new facts "are daily acquired, and theſe conſequently "giving occaſion to new reflections which "correct the principles formerly adopted, it

" is neceſſary from time to time to reform " and renew the whole ſyſtem with all the " additions and amendments it has recei- " ved and is then capable of." Under the ſanction of the above quotation, I muſt apologiſe for my intruſion on the public. The proceſs of putrefaction in the living body in ſcurvy, having lately given riſe to ſome ingenious ſpeculations in our ſchools of phyſic, I ſhall hope to be pardoned for contributing a little to the ſtock of facts on that ſubject; and ſome which, I apprehend, will not be altogether unacceptable to thoſe who wiſh to proſecute the matter ſtill farther.

To write on a diſeaſe that has already employed the pen of the late learned Dr Lind, is a taſk, I muſt confeſs, on which I enter with much diffidence and regret. The very extenſive practice of that gentleman while

a ſurgeon in the navy, and phyſician to one of the greateſt marine hoſpitals in the world, enabled him to produce a greater number of facts than moſt practitioners that have ever written. To his Treatiſe on Scurvy we are indebted for our preſent improved knowledge of the diſeaſe; and as his own experience and actual obſervation had been ſo long converſant with every ſtage of it, we are not to wonder that his opinions ſhould ſtill be the appeal of the different combatants, whether it is a diſeaſe primarily of the ſolids or fluids. But, notwithſtanding the hiſtory Lind has given us, in ſeveral places of his work he has left us much in the dark; and the doubts he has raiſed have been the cauſe of much controverſy. It ſeemed therefore a ſubject worthy of criticiſm, as modern phyſicians are diſpoſed to baniſh a humoral pathology from the doctrine of diſeaſes.

THERE is perhaps no diſorder on which the ſpeculating commentator may form notions more diſtant from its real nature than ſcurvy: And thoſe who have ſeen ſome practice in it, muſt be convinced of the truth of my aſſertions, if they conſult a book lately written on that ſubject. I muſt remark, however, the work alluded to has not been offered to the world with that diffidence and reſerve to which authors have recourſe when they attempt to broach new opinions and introduce innovations in ſcience; on the contrary, we have met with it as eſtabliſhed on facts not to be queſtioned. But though the notions here inculcated are ingenious and new, the learned Dr Milman has been accuſed of publiſhing the opinions of another man, well known as the leader of a doctrine, that has been ſo peculiarly employed in collecting every new ſhade of theory that could tend in the leaſt to darken

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the luſtre of the Cullenian æra. But it is ſufficient to mention this, and hope for every author to enjoy the merit of his own diſcoveries.

SINCE the publication of this new theory on the proximate cauſe of putrid diſeaſes, it is no unfaſhionable part of medical converſation for ſtudents to talk of curing ſcurvy by brandy and opium: The latter, as they have found it to be a moſt powerful ſtimulant, ſo it muſt be the fitteſt for overcoming a diſeaſe of debility. It is, however, to be hoped, that theſe gentlemen will carry their ſpeculations no farther than their cloſets.

SUCH is the preſent ſtate of opinions concerning ſcurvy; and, I am ſorry to add, too much the caſe with many other diſeaſes of the human body. Theories, advanced on

ſpeculative notions, muſt ever be baneful to ſcience. In medicine this is particularly the caſe: Some fixed appeal in moſt of the arts has generally decided the unprejudiced inquirer; but to the diſgrace of phyſic as a liberal profeſſion, no ſuch coalition of theory has yet taken place, and facts themſelves are daily perverted to ſerve favourite opinions.

WHEN we reflect on the vaſt ſums of money that have been ſpent on the recruiting and ſupport of our navy, we muſt at the ſame time lament how ſparingly it has been applied where the health of a ſailor is at ſtake. To ſhow that this is true, I need only mention, that many of our ſhips of war on foreign ſtations have actually buried the whole of the complement they carried from England, independent of thoſe who have died in action: And thus they have conſequently

ſequently fallen a ſacrifice to the diſeaſes of long voyages and unwholeſome climates. Though theſe misfortunes are not now to be remedied, it might yet be ſome conſequence in future to avoid, if poſſible, ſuch calamities, by informing us of the cauſes of theſe diſaſters in our ſhips of war.

WHEN we are told of five hundred ſurgeons having under their care the lives of 120,000 men in every different climate of the globe during a long war, and that ſo few of that number ſhould have favoured the medical world with any new obſervation, what muſt we impute it to? Surely not merely becauſe a ſea life affords no aſylum for ſtudy, or that no men of ſcience are among the number. But when it is told, that upwards of three hundred of that number are turned *adrift* at the end of a war, without any reward for ſervice or proviſion

whatſoever, can it be ſurpriſing they ſhould retire with diſguſt; and that, while the human mind is concerned for its own ſafety, art and ſcience muſt languiſh, and inquiry be deſerted?

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OBSERVATIONS

ON THE

SCURVY.

SECTION I.

IT is a matter of little conſequence to us, whether the ſcurvy was known and deſcribed by the ancients; and the ingenuity of ſome late writers has been as little ſucceſsful in clearing the point. Diſputes concerning the derivation of the word *ſcorbutus*

butus are equally frivolous: they have led ſome to confound the diſeaſe with ſymptoms by no means eſſential to it; and thus they reconcile the *ſplen magnus* and *convolvulus ſanguineus* to be the ſame with ſcurvy; and conſequently it was known to Hippocrates. What value the authority of antiquity may confer on the hiſtory of diſeaſes is not to be diſputed: but the labours of theſe gentlemen have been as much miſapplied here as others were in exploring the *herba Britannica* of the Roman naturaliſt (celebrated for having cured the diſorder in the Roman army); for we do not find in the writings of the ancient phyſicians any thing worthy to be ſought after, either in the hiſtory of the ſymptoms or cure of ſcurvy.

Modern noſologiſts have been at ſome pains to give us a definition of Scorbutus, by which it may always be diſtinguiſhed: And as it has been often thought to be a diſeaſe almoſt peculiar to our northern latitudes,

tudes, Dr Cullen begins with the words *In regione frigida.* According to the preſent opinions this was certainly a very juſt preamble; but in this undertaking I ſhall produce facts ſufficient for confirmation, that ſcurvy is not confined to cold countries, and that cold itſelf is not eſſential to the production of it. The *anorexia* of Linnæus I muſt alſo reject, as being indefinite of the character of ſcorbutus; and the *urina pellicula tecta* of Sagar, as well as that ſtate of the pulſe and urine ſo much talked of by different writers, are all liable to the ſame objection.

The notions of acid and alkaline ſcurvies, with other ſubdiviſions, are ſo hypothetical and inconſiſtent with our preſent ideas of the animal œconomy and modern pathology, as to need only mention to be refuted. We are now well aſſured that there is but one ſcurvy, which is the ſame from all the different cauſes; and the ſame method

thod of cure is equally to be purſued throughout the whole.

Ever ſince we had the firſt accounts of this diſeaſe clearly aſcertained by different authors, the cauſes producing it have been uniform and much the ſame. A diet of ſalted and ſmoke-dried proviſion, a too large proportion of animal-food, and even damaged proviſions of different kinds, have contributed towards the cauſe. Low, damp ſituations, bordering on marſhes and ſtagnant waters, have alſo had their effects; and to all theſe may be added, a deficiency of freſh vegetable matter, and the influence of cold, whether from ſeaſon or climate.

In the laborious collection of facts with which the induſtrious Dr Lind has furniſhed us, we find that ſcurvy has occurred from even oppoſite cauſes; and ſurgeons of Eaſt Indiamen have informed me, that they met with it in ſhips when the crew lived altogether on rice. But as I had no particular

cular deſcription of this occurrence, I have nothing further to draw from the fact. That it ever was known but after a diet of ſalted proviſions, has been doubted; and as this could not be attributed to ſerve a favourite theory, I muſt impute it to that want of attention to a diſeaſe that more ſeldom than others have come under the obſervation of men of inquiry.

At the concluſion of the late war, and from my rank on the Navy Liſt not intitling me to immediate employ, it was my fortune to embark on an African voyage. In converſation on the diſeaſes peculiar to the ſeamen and Negroes in this trade, I found the ſcurvy had been often met with among the latter. From unfortunate circumſtances, and delay in completing the cargo of our ſhip, which was to be from ſeven to eight hundred; about eight or nine months from the time we arrived on the coaſt, the ſcurvy began to break out among us. Such have at different

different times been the devaſtations of this dreadful malady, that whole cargoes have been carried off by it. As the prevention and cure is of the firſt importance to the commercial intereſts of this kingdom, and as it has never yet been the ſubject of medical inquiry, I ſhall be the more particular in my hiſtory of its antecedents and ſymptoms in the courſe of theſe Obſervations.

Much has been advanced on the prediſpoſing cauſes of ſcurvy; and ſome authors have in many places loſt ſight of the exciting for the prediſpoſing. Thoſe who have been particularly liable to it, and in whom it has been generally obſerved firſt to occur, are thoſe weakened by preceding diſeaſe, and in a convaleſcent ſtate are too ſoon put upon the common allowance of the ſhip. The lazy and inactive are next apt to ſuffer: hence it is proverbial among ſeamen, that the firſt ſcorbutics are ſkulkers. This ſet of people called ſkulkers, not only fly

from duty, but deprive themſelves of exerciſe, and are always of a repining diſpoſition. Thus it is that impreſſed men, and raw landmen, ſhare its firſt effects. Among the prediſpoſing cauſes, exceſſive fatigue is alſo mentioned; and its appearance in our ſhips of war is often after hard gales of wind, where the crew had been much fatigued with the neceſſary duty of the ſhip during tempeſtuous weather. Perſons of the melancholic temperament are univerſally obſerved among the number afflicted with ſcurvy wherever the occaſional cauſes were acting: and when we conſider that the hypochondriacal diſeaſe is confined to that temperament, we may perceive why ſome authors have confounded them together. In theſe caſes, in a beginning ſcurvy, I have often marked a degree of fearfulneſs and deſpondency; but, ſo far as my experience goes, without any ſigns of dyſpepſia, which properly characteriſe hypochondriaſis.

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In forming a diagnoſis of ſcurvy, there is but little danger of taking it to be a different diſeaſe. When we conſider the antecedents; and that any of its ſymptoms with which it is apt to be confounded with other diſorders, have never been obſerved without ſome ſign that perfectly diſtinguiſhes it; there can be little hazard of the attentive practitioner forming a wrong diagnoſtic.

Different kinds of herpes often paſs for ſcurvy, as being peculiar to certain conſtitutions; but ſuch a term as a ſcorbutic habit ſeems altogether fanciful.

In enumerating the ſymptoms of ſcurvy, I ſhall here confine myſelf to the manner it generally makes its appearance on board of his Majeſty's ſhips; and reſerve ſome ſingular occurrences, not hitherto mentioned, that I met with among the Negroes, when I come to relate its appearance in the Guineamen.

Every perſon who has been a ſea voyage,

muſt have perceived that longing deſire for freſh vegetables, after being for ſome time deprived of them. This I have often marked the harbinger of ſcurvy. Dr Lind, in ſome part of his work, has mentioned the ſame circumſtance: and he might very juſtly have put it down as a ſymptom; for it is more or leſs an attendant on the diſeaſe; and not only amuſes their waking hours with thoughts of green fields and rivers of pure water, but in dreams they are tantaliſed with the ſame ideas, and on waking nothing is ſo mortifying as the diſappointment. When I heard a ſailor expreſſing theſe deſires, and lolling about, I was not ſurpriſed to find him complain of ſore gums, &c. a few days after. About this time the colour of the face looks ſallow, the eye is dull and heavy, and the whole countenance as it were bloated: the patient feels himſelf wearied even after ſleep, and complains of pains in different parts of the body: he

grows inactive, and eaſily fatigued; often timid; has gloomy ideas about his ſafety, as if hypochondriacal; he flies from duty, and wiſhes to indulge in ſloth. To theſe generally ſucceed the appearance of the gums which ſo eſpecially characterizes ſcurvy: they ſwell, are ſpongy, and bleed on the ſlighteſt cauſe. The breath is fetid, and often attended with ſome diſagreeable taſte of the mouth. Some difficulty of reſpiration alſo now takes place on the patient uſing exerciſe; but commonly inconſiderable in this ſtage, which may be called the firſt.

All the ſymptoms now mentioned, in ſome caſes increaſe rapidly; while in others they make little progreſs even for weeks; and they are by no means regular in ſucceſſion. At one time the firſt appearance of ſcurvy is known from the ulcers having a thick cloat of blood lying over their ſurface, called by the ſailors *bullock's liver*, which it very much reſembles; and on removing this

this ſubſtance, in a few hours it exhibits the ſame appearance. At other times, it is firſt perceived from a ſwelling in the legs, which retain the impreſſion of one's finger; while a contrary feel often diſcovers it by ſome contraction and rigidity in the ham-ſtrings, with a ſlight diſcoloration of the ſkin in the ham. This is frequently ſo conſiderable, as to prevent the patient altogether from walking; and I have ſeen it remain for months after every other ſymptom of ſcurvy diſappeared.

As the diſeaſe advances, the laſſitude, languor, and debility become more conſiderable: The reſpiration is oppreſſed on the ſlighteſt exertions, with a proneneſs to faint in an erect poſture, and on being expoſed to air colder than the temperature they had juſt before breathed. It is not uncommon for ſailors, afflicted with ſcurvy, to walk upon deck, and drop down irrecoverably; though to all appearance, when below, there

ſeemed no danger. From this I muſt infer no juſt prognoſis can be always formed. The fetor of the breath now becomes more intolerable: Pieces of the gums fall off like cloats of coagulated blood: The teeth are looſened in their ſockets, and ſometimes drop out while the patient is eating: Spots of different ſizes appear on the ſkin, and the colour is variouſly modified from effuſions in the cellular texture: Every ſlight ſcratch is apt to degenerate into a foul ulcer, and old ſores are apt to break out afreſh. Hemorrhagies are now frequent from different parts of the body; and though the loſs of blood has been ſmall, there are inſtances of the patient expiring immediately after: The belly is generally coſtive, but diarrhœas are not uncommon: Nothing ſatisfactory is to be learned from the ſtate of the pulſe, for it is often to be felt regular a ſhort time before death. The mind in the beginning of the diſeaſe is timid and deſponding, but to-

towards the fatal period there is a total indifference and ſeeming torpor of every feeling. Throughout every ſtage, for the moſt part, the appetite continues unimpaired; and the patient is known frequently to expire with the bit in his mouth.

I ſhall now relate in what manner the ſcurvy made its appearance among the ſlaves on board of the African trader.

About the beginning of July 1783, the Liverpool Guineaman, of which I was ſurgeon, came to anchor off Cape la Hore. No ſhip had traded here for ſome time, ſo that in the ſpace of a week we purchaſed a hundred ſlaves. They were all young, ſtout, and apparently healthy. After being ſo far lucky in beginning our purchaſe, we proceeded to Anamaboe to complete the cargo. On coming to anchor at Cape Coaſt Caſtle, we were informed of the ſlaves not only being ſcarce, but very dear, from the number of veſſels then lying in the road.

So ſlow was now the progreſs of our trade, that in February we had not bought two-thirds of our number. About this time I perceived the ſlaves firſt purchaſed growing exceedingly fat; and on that account urged to the maſter the neceſſity of allowing them more exerciſe, or reducing the quantity of their diet, which had hitherto been too much, from a miſtaken notion that it would ſtrengthen them the more for a paſſage to the Weſt Indies. Their diet conſiſted of beans, rice, and Indian corn, alternately, boiled; to which was added a ſufficiency of Guinea pepper, and a ſmall proportion of palm oil and common ſalt. A crew, which held from fourteen to ſeventeen quarts of this compoſition, which was of the conſiſtence of a ſoft paſte, was given to ten of them two times in the day: They were allowed to drink water at pleaſure. But from being confined for fifteen or ſixteen hours below, and permitted no exerciſe

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when upon deck, it was eaſy to foreſee they could not remain long in a healthy ſtate. Such, however, was the obſtinacy of the maſter of the veſſel, that this treatment was ſtill perſiſted in: The food was given them in equal quantity; and though a certain number might have been taken out of irons at a time without endangering the ſafety of the ſhip, it was not attended to. The cuſtom of dancing them to the ſound of a drum, perhaps from a diſlike the commander had to every ſpecies of harmony, was alſo denied them till too late.

It will be proper to obſerve here, that theſe poor wretches are chained two and two by the wriſts and ankles: ſuch as are ſuſpected of doing miſchief, are likewiſe chained to the deck during the day. The rooms below are from five to ſix feet in height, according to the ſize of the ſhip; and beſides the number that can lie on the deck, half as many lie on a platform that runs

each ſide of the ſhip, raiſed about two feet and a half from the floor, equal in breadth to the length of a man. Here they are ſtowed *ſpoonways*, as it is called, and ſo cloſe locked in one anothers arms, that it is not poſſible to tread among them. The rooms are imperfectly aired by gratings above and ſmall ſcuttles in the ſide of the ſhip, which are obliged to be ſhut at ſea, and the gratings are covered with tarpaulings when it blows hard or during rainy weather. The temperature in theſe apartments, when nearly full, was about 100° of Farenheit's ſcale; the effluvia is ſo intolerable, that in a few minutes you may have the condenſed vapour from your face in great quantity. During the ſeaſon of the year that the ſhip was on the coaſt, there ſcarce fell a ſhower of rain, and the weather was not more ſultry than uſual in theſe latitudes *.

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* From all my inquiries, I was not able to learn that ſuch

In this ſituation things remained with us till the beginning of March, no precaution being uſed to ſecure the health of the cargo, when a corpulent young Negro complained to me of a hardneſs in the ſupinator radii longus of his right arm. It had a very unuſual feel, and the ſkin did not retain the ſmalleſt impreſſion of the finger or of any force I could apply. He was ordered ſome ſimple thing to rub it with; but on inſpecting it next day, I found the hardneſs extend to all the muſcles on the upper part of the fore-arm, with ſome contraction at the joint of the elbow and rigidity of the tendinous aponeuroſis of the biceps: The parts affected were not in the leaſt ſwelled or increaſed in ſize. And in this manner did it gradually ſpread up the arm to the ſhoulder

ſuch a diſeaſe as ſcurvy was ever ſeen among the natives of Africa on ſhore: But I verily believe it has occurred more frequently in Guineamen than has been ſuppoſed.

der over the muſcles of the neck and lower jaw, producing a *triſmus;* and from thence downwards, till a ſpaſtic rigidity pervaded every muſcle of the body. About the time this hardneſs extended ſo far up as his ſhoulder, a ſtupor came on; and while he retained the uſe of his other hand, he continued picking ſtraws from the deck as people do the bed-cloaths in a ſtate of delirium. The eye now became fixed, and the tongue lolled out at the ſide of the mouth for three days before death. In this caſe the warm-bath was tried, and perſiſted in for ſome time without effect; and when endeavouring to force the mouth open to try another remedy, I firſt found the gums exhibit the appearance as in ſcurvy, and ſeparating in black maſſes from the teeth, many of which were looſe, and the fetor of the breath intolerable.

There was now little doubt that the diſeaſe in queſtion was ſcurvy, though I could by

by no means reconcile circumſtances to any thing I had ever read or ſeen of it; but as I had heard of it occurring among Negroes where the like cauſes were acting, I was the more confirmed in my opinion.

It was now time to think of either preventing it among the other ſlaves, or taking it at the beginning; and as the one juſt dead was remarkably fat, it was moſt probable thoſe in the like ſituation would be ſufferers. I accordingly ſelected the moſt corpulent; and on examining them cloſely all over, found the like hardneſſes in many of their limbs. Their gums were juſt beginning to ſhow the appearance of fleſh ſprouting out from them; they complained of pains and weakneſſes in their extremities; and wherever they lay down, were ready to fall aſleep. Ulcers on any part of the body were covered with the cloated blood formerly taken notice of. Many of them

them, inſtead of the hard ſpots on their limbs, had their legs ſwelled, and pitting on preſſure: a peculiar ſtupor was obſerved in ſome, which in the advanced ſtage of the diſeaſe turned to delirium; and none but one with this ſymptom ever recovered. A contraction of the joints of the ham and elbow was equally frequent. In a few, there were hemorrhagies from the noſe, and a purging of blood *. Theſe appearances were all for ſome time confined to the ſlaves that had been longeſt on board; and among them, to thoſe that were moſt corpulent and uſed leaſt exerciſe. So certain was I of this, that when I ſaw a Negro taking on fat too rapidly, I could judge when he would be ſeized in the like manner. Thus it advanced among them by quick degrees, till it ſhowed every different ſymptom taken notice

* The blood that flowed from theſe hemorrhagies was always of a darker colour than natural; and when cold, only formed a partial coagulum.

tice of by authors. When it came to affect a greater number than thoſe of the firſt purchaſe, I could perceive the natives of ſome different countries more liable to it than others. Of theſe were what are called the *Dunco* country; of a ſallow complexion, heavy dull look, inactive and gloomy turn of mind: While the Fantees, who are preferred to all other natives of Guinea on account of their fine black colour and genteel ſhape, were ſcarcely tainted with the diſeaſe. Theſe, on the contrary, are a cheerful lively people, and generally the firſt to raiſe mutiny in ſhips, or undertake any hazardous enterpriſe.

This is a proof, that depreſſing paſſions of the mind have a powerful effect in the production of ſcurvy. I can by no means ſuppoſe the Negro feels no parting pang when he bids farewell to his country, his liberty, his friends, and all that is to be valued in exiſtence. In the night they are often

ten heard making a hideous moan. This happens when waking from ſleep, after a dream that had preſented to their imagination their home and friends. Thoſe who have ever known what it is to deplore the ſeparation of a tender tie, muſt have remarked how exquiſite ſenſibility becomes after a dream that painted to their fancy the image of ſome darling object.

Of all the women only eight were affected, and that number was confined to the Duncos. Few boys were tainted, from being out of irons, and allowed to run about the ſhip.

During all this none of the ſailors had the leaſt ſcorbutic complaint, though they generally eat a portion of the ſlaves victuals with their ſalted beef. But they had at all times plenty of freſh vegetables, which they purchaſed themſelves from the natives, and which I believe was a means of correcting the bad properties of the water they uſed.

This water was taken from a ſtagnant lake; and ſo full of animalcules, that when ſtrained through a ſtone, and kept for the ſpace of a few hours, it again exhibited the like number of living atoms. It had likewiſe the effect of producing the Guinea-worm among the Negroes firſt purchaſed, who had no ſigns of it till living on this water for ſome months.

Our ſituation was now ſo bad, that numbers were daily taken ill, and others dropping off; while the Maſter of the veſſel, whoſe character was perfectly congenial to the trade, attributed every misfortune to the machinations of the Doctor and Devil. At the end of April, however, our purchaſe was completed; and when we left the coaſt had buried ſeven or eight of the ſcorbutics, from eighty to ninety were ill, and more likely to add to the number. Our ſtock of vegetables at departure did not exceed a few gallons

gallons of lime-juice, ten or twelve dozen of oranges, and ſome baſkets of guavas.

After being three or four days at ſea, our liſt of ſcorbutics was nearly doubled; and I ſuſpected much mortality from a flux ſpreading among them. My ſurpriſe was now a good deal excited, on finding two ſlaves, who had been only twelve days on board, complained of ſore gums, pains of their limbs, with ſome degree of ſtiffneſs in the joint of the knee; and in a few days more, ten or twelve of the laſt fortnight's purchaſe were added to the number. I had before aſcribed the diſeaſe to an over-proportion of food and want of exerciſe: and I was well aſſured the ſcurvy had never made its appearance among Negroes on ſhip-board ſooner than ſome months confinement; ſo that in the preſent caſe, I was to look for ſome other cauſe. It has been often aſked, If the ſcurvy is a putrid diſeaſe, why is it not contagious? Some old writers have af-

ſirmed that it is contagious: but Dr Lind tries to refute this aſſertion from his own experience. Still, notwithſtanding the authority of Dr Lind, it ſeems probable to me, in this inſtance, the ſcurvy was ſpread by contagion. When we conſider ſuch an atmoſphere as has been deſcribed, where the ſlaves are kept, and of ſo high a temperature, tainted with the offenſive effluvia from ſo many ſcorbutic lungs, can we wonder that this foul air, when breathed again, or applied to the bodies of others in a manner we cannot comprehend, ſhould be highly noxious? I know it will be readily allowed, that foul air, not diffuſed in the atmoſphere, may in a ſhort time acquire ſuch a degree of virulence as to produce fever: but are there facts to prove, that in ſuch a ſituation as this it would not produce ſcurvy? Many writers on the diſeaſe mention impure air, damps, &c. among the remote cauſes: and if the doctrine of ferments is

to be at all admitted, it is as likely thoſe effluvia may communicate ſcurvy, as inoculation may communicate ſmall-pox, itch, or any contagious diſeaſe, when taken into the body.

Our ſmall ſtock of antiſcorbutics being ſoon conſumed, the ſtate of our cargo was left miſerable indeed. The decks in every corner were covered with miſerable objects, exhibitings views of diſtreſs equal to any ever recorded of this loathſome diſtemper. Several were affected in a manner ſimilar to the firſt; others dropped down immediately on coming upon deck; while ſome expired at their victuals in full fleſh and blood. After a five weeks paſſage, however, we made Antigua, having buried forty by the way; and it is probable, that had we been ten days more at ſea, half the cargo muſt have periſhed, there being at this time three hundred tainted in different degrees with ſcurvy.

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We had it now in our power to alleviate the diſtreſſes of theſe poor wretches; and as their confinement was no longer requiſite for the ſafety of the ſhip, they were all immediately ſet at liberty. Supplies of freſh vegetables were procured from the ſhore, conſiſting of lemons, limes, oranges, pine-apples, &c. Theſe were diſtributed among them occaſionally; and notwithſtanding they continued their uſual diet, in the ſpace of eight days, at which time we arrived at Jamaica, there was little remains of ſcurvy among them. They were now fed and prepared for market; the offals of beef were boiled among their victuals; and on the week following the ſale of the cargo opened at a very high price.

I have now finiſhed the hiſtory of this remarkable diſeaſe as it occurred in a Guineaman. I ſhall next examine the opinion of ſome late authors concerning the proximate cauſe; and by comparing facts from

practice, endeavour to reconcile theories to a more juſt and accurate knowledge of its real nature than has lately been attempted.

SECT.

SECTION II.

FROM the hiſtory of Scurvy given in the preceding pages, it muſt appear, that the cauſes producing it are not only various, but in ſome degree oppoſite. Such different cauſes, then, producing one effect in the body, muſt ever make theories on this diſeaſe doubtful and uncertain. Notwithſtanding the many improvements modern anatomiſts have made in demonſtrating the ſtructure of the human machine, every phyſiologiſt muſt confeſs how much

we are ſtill in the dark concerning many operations in the animal œconomy: ſo that all reaſoning not conſiſtent with principles eſtabliſhed in practice, muſt be foreign to the genuine method of cure, and conſequently dangerous to be adopted. No diſeaſe whatever makes its appearance with ſo many ſymptoms, and ſo complicated and different in different people, as ſcurvy. Throughout the whole of its ſtages, there is ſomething ſo peculiar to itſelf, that no deſcription, however accurate, can give the reader an idea adequate to its real nature.

From the oldeſt authors who have written on ſcurvy, it has been claſſed among putrid diſeaſes. The very nature of its production, the fetor of the breath, cadaverous ſmell of the ulcers, and bloated appearance of the whole body, have acquired it this appellation. This putreſcency, till very lately, was ſaid to exiſt in the blood; and Dr Lind, in the laſt edition of his work, is

the

the firſt who has objected to the generally received opinion. Dr Milman, improving on theſe hints, in a book lately publiſhed, intitled, "An Inquiry into the Source from whence the ſymptoms of Scurvy and Putrid Fever ariſe," undertakes to prove the blood altogether innocent, and that its ſenſible qualities are not changed. Since then, as I have remarked, the hints of Dr Lind ſeem to have given riſe to theſe new opinions; and that all the phenomena of ſcurvy are to be very differently ſought, and more ſatisfactorily accounted for, from a diminution of the vital power in the moving ſolids; I ſhall proceed to examine the validity of their arguments, ſo far as practice is concerned.

In the firſt place, it is the favourite opinion of Lind, that a ſeaman's diet is only hurtful as being of difficult digeſtion, and not from being ſalted. To prove the innocence of ſalted meats, he produces experi-

ments of ſalt-water being drank in great quantities with impunity, and even ſcorbutic ſailors uſing it without any bad effect. All this may be very true. Salt taken in this way is powerfully diluted with a quantity of water; to which in a great meaſure is owing its purgative qualities. Since then it has a purgative quality, and, by remaining ſo ſhort a time in the inteſtinal canal, there is either ſo ſmall a quantity taken up by the abſorbents, or what enters the circulation muſt be ſo much diluted with the water taken with it, that though the ſalt may not be capable of aſſimilation with our fluids, this water may ſtill prove the means of its being carried the eaſier and ſooner off by the various excretions; thus certainly ſalt has been taken with impunity, as we daily ſee: But can we apply the like reaſoning to the manner it is taken with ſalt beef or pork? In all accounts of the diſeaſe from thoſe who have been converſant with

with it in our ſhips of war, till the ſmall-beer was done, and the water ſerved in allowance, the ſcurvy is ſeldom known. So that plentiful dilution is of ſome conſequence in the prevention; and I am apt to believe the ſalt is hurtful, from being retained in the body.

The experiments of Sir John Pringle concerning the antiſeptic properties of ſea-ſalt, appear to me not fit to be truſted in explaining any proceſs within the body; and I ſhall reject them from the ſame reaſons as the ſupporters of the other ſide of the queſtion.

Another proof Dr Lind adds, to ſhow that theſe proviſions are not hurtful from being ſalted, is, That ſhips crews have lived for a long time at ſea, in perfect health, without the uſe of vegetables. This I will not deny; but is it conſiſtent with the inferences he has elſewhere drawn? How comes it that ſhips companies living ſo long on an indi-

indigeſtible diet ſhould remain healthy? If a ſeaman's food is hurtful from this quality, it is very natural to ſuppoſe the effect would be in proportion to the time the cauſes were acting; which is not the caſe: for inſtead of weak and emaciated habits, he tells us they returned to port, after a three or four months cruiſe, healthy and vigorous.

To ſtrengthen this part of their argument, Dr Milman produces the ſingular health of Captain Cook's people in an expedition to the South Seas. But to ſhow this is of no weight, I would only affirm, that Captain Cook's ſhips were fitted out in a very different manner from our common ſhips of war; and the very cauſes Milman aſſigns for the healthfulneſs of the crews, did moſt certainly prevent the bad effects of a ſalted diet. Theſe ſhips carried a much greater proportion of water to ſea than is commonly done; this was alſo often renewed;

newed: when in port, he provided them not only with ſtock in abundance, but always procured them as many freſh fruits and vegetables as they could well carry with them. Thus the ſcurvy was ſo little known in theſe ſhips. But had Dr Milman conſidered how impoſſible it would be, and how inconſiſtent with the nature of our marine ſervice to fit out every ſhip of war in that manner, he would not be ſurpriſed to find the ſcurvy ſo frequent on board of his Majeſty's ſhips while the ſeamen live on ſalted proviſions.

Lind's notions, that an animal body cannot aſſimilate ſea-ſalt, ſeem to me equally inconcluſive. Though he took this ſalt unchanged from the urine of ſcorbutics, yet he draws no compariſon between the quantity taken in and that recovered: and as it is ſaid, that in ſcurvy there is a preternatural ſaline ſtate of the blood preſent; and conſequently ſo loaded already with an animal ſalt, that it

it may not be able to aſſimilate more; can we then be ſurpriſed to find the ſea-ſalt paſs off unchanged by the kidneys? But I doubt much if the common ſalt has been recovered ſo pure as has been alleged; and, if we are to truſt ſome late chemical trials, it was found to be rather of the ammoniacal kind: and whether this will be admitted or not, till future experiments determine, I would reject the concluſions Dr Lind draws. But further, concerning this particular, Dr Cullen ſays; "Even ſuppoſing ſuch ſalt to ſuffer "no change in the animal body, the effects "of it may be conſiderable." This muſt be readily allowed, though we ſhould not be able to account for its operation.

But to prove beyond all doubt, that theſe proviſions are hurtful from being ſalted, I will produce Lind's own words; and which plainly ſhow, concluſions he has elſewhere drawn are by no means to be truſted on this ſubject. Nothing but the ſake of truth could

could me make thus impeach the accuracy of the learned author. " There are not want-
" ing," ſays he, " inſtances of the good ef-
" fects attending this method of putting the
" ſhip's company, in long voyages, upon a
" very ſhort allowance of ſalted meats. The
" following is too much to the purpoſe to
" be omitted, as it ſeems to demonſtrate the
" utility of the meaſure by a comparative
" trial at different times of its effects.

" In a former war, the men belonging to
" the Sheerneſs, bound to the Eaſt Indies,
" apprehenſive of ſickneſs in ſo long a voy-
" age, petitioned their captain not to oblige
" them to take up their ſalt proviſions, but
" rather to permit them to live on the other
" ſpecies of their allowance. Captain Pal-
" liſer ordered that they ſhould be ſerved
" with ſalted meat only once a-week, viz.
" beef one week, and pork the other. The
" conſequence was, that after a paſſage of
" five months and a day, the Sheerneſs ar-

" rived

" rived at the Cape of Good Hope without
" having ſo much as one man ſick on board.
" As the uſe of Sutton's pipes had been then
" newly introduced into the King's ſhips,
" the captain was willing to aſcribe part of
" ſuch an unuſual and remarkable health-
" fulneſs in ſo long a run to their benefi-
" cial effects; but it was ſoon diſcovered,
" that by the neglect of the carpenter the
" cock of the pipes had been kept all this
" while ſhut. This ſhip remained in India
" ſome months, where none of the men, ex-
" cepting the boats crews, had the benefit of
" going on ſhore; notwithſtanding which,
" the crew continued to enjoy the moſt
" perfect ſtate of health. They were in-
" deed well ſupplied with freſh meat.

" On leaving that country, knowing they
" were to ſtop at the Cape of Good Hope,
" and truſting to a quick paſſage and to the
" abundance of refreſhments to be met there,
" they ate their full allowance of ſalt meats

" du-

"during a paſſage of only ten weeks; and "it is to be remarked, that the air-pipes "were now open. The effect of this was, "that when they arrived at the Cape, twen-"ty of them were afflicted in a moſt mi-"ſerable manner with ſcorbutic and other "diſorders. Theſe, however, were ſpeedily "recovered on ſhore by the land refreſh-"ments. Being now thoroughly ſenſible "of the beneficial effects of eating in theſe "ſouthern latitudes as little ſalt meat as "poſſible, when at ſea, they unanimouſly "agreed in their voyage home from the "Cape to refrain from their too plentiful "uſe of ſalted fleſh. And thus the Sheer-"neſs arrived at Spithead with her full "compliment of 160 in perfect health, and "with unbroken conſtitutions: having in "this voyage of fourteen months and fif-"teen days buried but one man, who died "in a ſalivation *."

Ha-

* Eſſay on the Health of Seamen.

Having now amply refuted the notion that ſalted meats are innocent, it remains for me to conſider the arguments in favour of indigeſtible diet producing ſcurvy. To ſupport this opinion, the other ſpecies of a ſeaman's fare, as conſiſting principally of unfermented farinacea, has been mentioned. I will readily allow that the whole of a ſeaman's diet is hard of digeſtion: But to what purpoſe has this fact been employed by Lind and Milman? They themſelves tell us, as I have already remarked, that crews living for months on this kind of proviſion without vegetables, have continued free of diſeaſe. Here was none of the conſequences that follow a bad digeſtion, ſuch as want of appetite, and emaciation of the body from not being duly nouriſhed: And that this cauſe had no effect in producing ſcurvy, is very plain from the above quotation from Lind, where they really prevented it. Numerous inſtances might be produced to

prove the ſame, too well known and too common to need repetition. But that debility of the digeſtive powers, ſo ſtrongly contended for by Lind and Milman, is not eſſentially an attendant of the diſeaſe in queſtion. The curious fact from Van Swieten is altogether frivolous; "to ſhow how any "indigeſtible matter, irritating and weak-"ening the ſtomach, may be apt to excite "this complaint." Lind himſelf, in many parts of his book, mentions the ſoundneſs of the digeſtive organs; and in one part he ſays (after deſcribing ſome of its worſt ſymptoms), "Moſt, although not all of them, "even in this ſtage, have a good appetite." Ecthius, one of the oldeſt writers on ſcurvy, has theſe words: "The appetite is ſel-"dom bad; on the contrary, they have ge-"nerally a good one." From my own practice I muſt only remark, that all my obſervations tend to confirm this, as I have taken notice of in the account of the ſymp-

toms: and as far as my reading of authors on the ſubject goes, the ſame thing is atteſted by the whole of them concerning the appetite and ſtate of the ſtomach. Among the Negroes I found no ſigns of indigeſtion; on the contrary, the diet was highly nutritious, and the inveteracy of the diſeaſe ſeemed to be in proportion to the corpulency. But further, and to conclude my arguments on this head on principles eſtabliſhed in pathology: That the functions of the ſtomach are entire, is confirmed from ſcorbutic patients indulging ſo long in the uſe of aceſcent vegetables without any ſymptoms of indigeſtion whatſoever. There is, perhaps, no diſeaſe incident to the human body where vegetables can be ſo freely uſed without their tending manifeſtly to debilitate the tone of the ſtomach. A ſmall quantity of lemon-juice, and even too ſour punch, has been known to bring on a fit of the atonic gout: Perſons ſubject to dyſpepſia, are ſure

to

to have their complaints aggravated by vegetable acids: It is the ſame in hyſteria and hypochondriaſis, and in every other diſeaſe where the digeſtive organs are ſo immediately concerned. Whereas we find no ſuch effects follow their uſe in ſcurvy, though the quantity of lime-juice taken ſometimes, has been incredible. Upon the whole then I muſt obſerve, that a ſeaman's diet is not productive of ſcurvy from being hard of digeſtion; and that in ſcurvy there is really no ſymptom of a weak ſtomach preſent.

Such is part of the baſis on which Dr Milman has built his theory. I ſhall now examine ſome other of the cauſes of ſcurvy which he has endeavoured to reconcile to his ſide of the queſtion, that it is a diſeaſe primarily of the ſolids.

Dr Milman is among the number who contend, that the ſcurvy was known to and deſcribed by the ancients. His arguments

on this part are certainly ingenious; and had they been satisfactory, must have served his doctrine: For if it can be produced by directly debilitating powers, these must ~~the scurvy must~~ exist at all times and in all ages. But proofs to this purpose are by no means convincing; and what I have already said on that head seems to me sufficient.

Among the arguments in favour of the scurvy depending on a diminution of the vital power, they tell us, that those are most liable to it who have been weakened by preceding diseases. This is admitted, that whatever debilitates the habit predispose to scurvy. But to make their proof decisive, they should likewise have assured us, that the body was always in a weakened state at the beginning of the complaint; which is not the case: For in all instances where scurvy has raged to a high degree, we find not only the weak, convalescent, and valetudinary, but the most robust and otherwise healthy,

healthy, have ſuffered from its influence. I have myſelf ſeen what is called a *hardy ſeaman*, who treated the raw ſcorbutic landsman under his affliction with the moſt ſovereign contempt, forced in a few days after to confeſs the attack of ſcurvy, when it was neither in the power of exerciſe or high ſpirits to reſiſt its influence. Thus have the cheerful and the gay ſuffered in their turn on many occaſions, ſo that nothing general can be admitted on this part of the remote cauſes. Dr Milman indeed ſeems to have been aware of this, and he has recourſe to what he calls *the modification of the remote cauſes*. But the ingenious Dr Ferris * has ſufficiently ſhown the abſurdity of applying this even to Milman's own theory: and to what he has ſaid, I would add the ſingular caſes of the luſty young Negroes, where no debilitating cauſe was acting to diminiſh di-

* See his Inaugural Diſſertation, publiſhed at Edinburgh in 1783, p. 81.

rectly the vital power, or ſo modify this diminution in any manner as to produce ſcurvy. It ſeems to me, however, probable, that one ſtate of the fluids may be produced by all the different cauſes hitherto mentioned; and ſuch a one, I apprehend, may be accounted for as being the proximate cauſe of ſcurvy; while the phenomena of the diſeaſe are to be attributed to the action of the fluids on the ſolids.

Having now offered my objections to the ground of Dr Milman's theory; it will be neceſſary to examine on what authority he affirms, that the blood is altogether untainted in this diſeaſe.

Though Dr Lind has told us of the inveteracy of ſcurvy in thoſe patients, the ſerum of whoſe blood he found inſipid to the taſte; yet he has not informed us how long theſe patients had lived on the hoſpital broths, or what quantity of freſh vegetable matter they had taken in from the time they had been

been on ſhore. The reaſon for my mentioning this is, that I ſuſpect a ſmall quantity of acescent vegetables, would ſo far change or dilute the maſs of blood, as to make a great part of what has been called *the preternatural ſaline ſtate* paſs off by the various excretions, otherwiſe naturally diſpoſed to be carried off by theſe emunctories: and the recovery of ſcorbutics is ſo very ſudden ſometimes, after the uſe of lemons and oranges, and the taking in of freſh nouriſhment, that this is likely to be of ſome conſequence. But if common ſalt, as Lind has ſaid in another place, can actually circulate in our fluids, how could the taſte of the blood be inſipid while the ſalt remained there unchanged? Theſe are at leaſt bold proofs that his experiments are not deciſive.

In the poſtſcript to Lind's book, we alſo find from his account of diſſections, that in dropſical collections of the breaſt the fluid was ſo acrid as to whiten and ſhrivel the ſkin

of the perſon who diſſected the body; and in ſome inſtances, where the ſkin of his hand was broke, it irritated and feſtered the wound. It will ſcarcely be argued that this fluid acquired ſuch a degree of acrimony during its ſtagnation in the cavity of the thorax, or that the exhalant veſſels could poſſibly ſo alter it in pouring it out. I ſhall, however, employ it as a preſumptive proof, that this acrimony exiſted in the maſs of blood; becauſe we do not find in the records of medicine, that any practitioner ever found ſo ſingular an appearance in dropſies from other cauſes. And was I to *theoriſe*, if I may be allowed the expreſſion, a little farther on this fact, I would ſay, that the ſuperabundant animal ſalt in the blood was the cauſe of every ſlight diviſion and irritation of the ſkin being ſo apt to degenerate into foul ulcers. The corroſiveneſs of the effuſed fluids in ſome ſcorbutic dropſies, is alſo confirmed from Poupart's diſſections,

where

where it was found of different colours, and ſo cauſtic, that putting their hands into it, the ſkin would come off attended with heat and inflammation. In the joints alſo was found a greeniſh liquor, which by the ſame quality even corroded the ligaments. Had Dr Lind taſted a fluid of this nature, I will venture to affirm it would have left an impreſſion on his palate very different from inſipid.

The late Dr Young, in his celebrated Theſis on Milk, remarks, That if an animal feeds on a vegetable diet, the milk will be ſaccharine and aceſcent; if upon animal, no ſugar will appear in that fluid, but on the contrary it will be putreſcent. On our paſſage from Africa to the Weſt Indies, a Negro woman giving ſuck, began to complain of ſpongy gums and ſome other ſymptoms of ſcurvy. It would have pleaſed me much to examine the ſtate of the milk in the advanced ſtage of this diſeaſe; but the ar-

arrival of the ſhip at Antigua prevented me from puting the matter to a final experiment.

Although it would be impoſſible to demonſtrate that our fluids are in a ſtate of actual putrefaction, I ſee no reaſon why we ſhould not retain the term while the remote cauſes account for it. It appears perfectly conſiſtent with our ideas of an animal body, that by living for a long time on a fleſh diet, our fluids may acquire a tendency to putridity. We know that the animal proceſs can aſſimilate all vegetable food; but we know no power in our bodies to overcome the too great quantity of animal diet, unleſs by a due ſupply of freſh vegetables. The following paragraph, elſewhere quoted, is ſo perfectly conſiſtent, that I ſhall not heſitate to make uſe of it: "All our "fluids have a natural tendency to putre-"faction; in order that they may be pre-"ſerved from a morbid putreſcence, there

" muſt be a continual renewal of them by
" freſh chyle, and an expulſion of thoſe
" particles in which corruption is begin-
" ning. If there be not ſuch a conſtant ac-
" ceſſion of freſh food, our fluids ſoon fol-
" low their own nature; and, as an addi-
" tion to the evil, this want of nouriſhment
" muſt deprive the conſtitution of that de-
" gree of plethora which is requiſite for
" carrying on the ſecretions and excretions.
" Hence thoſe parts of the blood which
" were degenerating into putrefaction, in-
" ſtead of being expelled by ſome of the
" emunctories, will be accumulated; and,
" like a leaven, ſoon ſpread their influence
" through the whole putreſcent maſs *."

Experiments made on the blood out of the body are never to be admitted in explaining this wonderful ſecret of the animal œconomy; for we neither know on what depends the coagulation of our blood, or

* Milman, Lond. Tranſac. Vol. II.

or what effects certain properties of the air may have in retarding the putrefactive fermentation of the vital fluid when drawn from its veſſels. This is illuſtrated from ſeveral excretions being really more fetid when firſt ſeparated from the body, than they ever come to be afterwards on expoſure to the atmoſphere, &c.

When we take a ſurvey of the cauſes of ſcurvy, and how ſeldom it has appeared unleſs where the diet was in fault, and the few ſolitary caſes related of it occurring where plenty of freſh vegetables were uſed, with moderate exerciſe, we can the leſs admit the concluſions of Dr Milman. That there is a great debility preſent with the diſeaſe, is not to be denied; but of ſo peculiar a kind, that nothing ſeems analogous to it. In proof of this, I need only mention how little advantage has been gained by the uſe of the cold bath, mineral acids, and the celebrated Peruvian bark; the latter of which

which I have given at the rate of an ounce to eighteen drams in a day, but never obſerved much good from it in a real ſcorbutic ulcer: whereas, in the ſpace of twenty-four hours after the uſe of a ſmall quantity of lemons or oranges, the ſore has put on a healthy appearance; and it is well known in practice, how rapidly ſome large ſcorbutic ulcers will heal when the patient comes to live on freſh vegetables.

What Milman has ſaid on the hoſpital broths with regard to the cure, will not at all ſerve his theory; for a nutritious food is not eſſential to the cure of ſcurvy. Theſe broths, when ſerved to ſcorbutic patients, are full of greens and other vegetables in ſeaſon, which of themſelves are ſufficient to overcome the diſeaſe; unleſs the habit previous to the attack of ſcurvy was in a weakened ſtate, or if it came to be ſo as the diſorder advanced, this nutritious compoſition will only then be neceſſary to the cure. The

ſcurvy,

ſcurvy, in numerous inſtances, has been cured on ſhip-board, where nothing but the common eſculent vegetables and aceſcent fruits were uſed; as in the following. About the end of May 1780, the Berwick of 74 guns, ſailed for the Weſt Indies, in a ſquadron under the command of the brave and unfortunate Commodore Walſingham, who periſhed in the Thunderer in the memorable hurricane off Bermuda the October following. On the third week from our leaving England, ſome of the men began to complain of a ſtiffneſs of the knee-joint, ſore gums, and ſome other ſymptoms of ſcurvy. The beer had been now done a week, and the water was ſerved to the crew at allowance of ſo much per man a-day. When we came to Jamaica, notwithſtanding we got ſome refreſhments to windward, thirty-five of our crew were tainted with ſcurvy. The paſſage from the Lizard was not more than eight weeks, and the

weather

weather ſo remarkably mild, that there ſcarce fell a ſhower while we were at ſea. The Royal Hoſpital at this time was ſo full at Port Royal, as to be unable to receive any more; ſo that it only remained for us to cure them on board. I accordingly ſolicited the commanding officer to permit the ſick to exchange their ſalt proviſions with the black women for vegetables: which was complied with: and I ſtood by, to take care no liberty was taken with this indulgence. The happy conſequence was, that in ten days they all returned to duty.

That ſtate of the pulſe which Milman takes notice of under the great authority of Baron Van Swieten, is confirmed by no other author of credit. While ſuch a debility prevails in the ſyſtem, we muſt expect a weak circulation: but I could never draw any general concluſions from the ſtate of the pulſe; and it has been little regarded in practice

practice by thoſe who have been moſt acquainted with the diſeaſe.

The notions of a humoral pathology having been ſo juſtly condemned in accounting for the various phenomena of diſeaſes, it has ſeemed matter of ſurpriſe to ſome, that the putreſcency of the fluids ſhould ſtill be contended for by Dr Cullen; more eſpecially ſince to him, in a peculiar manner, we are indebted for our preſent method of inveſtigating the cauſes of diſeaſes. Whether in all caſes this new doctrine can be admitted, a more ſucceſsful method of cure can alone determine. In an ingenious theſis publiſhed at Edinburgh in 1783, intitled *De Sanguinis per Corpus vivum circulantis Putredine*, Dr Ferris undertakes to vindicate the opinions of his great maſter: to which, for a full pathological diſcuſſion, I muſt refer the reader.

In his theory of ſcurvy, the illuſtrious Profeſſor of Edinburgh has overlooked that

it ever occurred after living on other kinds of diet beſides one of ſalted meat: on which account, if the proximate cauſe he aſſigns is to be admitted, it muſt be differently accounted for. The hiſtory I have given of the Negroes, and which I have faithfully related, ſeems ſtill more repugnant to Dr Milman's ſide of the queſtion; but there is ſomething in the œconomy of the Negro that may aſſiſt us in part to reconcile it to Dr Cullen's idea of a preternatural ſaline ſtate of the blood. I have often obſerved in the Negro the ſudden tranſition from leanneſs to obeſity, and the contrary. This diſpoſition to grow fat ſo rapidly, eſpecially when reſtricted from exerciſe, ſeems much owing to the nature of their food; which is almoſt vegetable, and conſequently yields a greater quantity of perſpirable matter. For the better containing this perſpirable matter, nature, for purpoſes we need not explain, has provided them with a greater

proportion of cellular membrane than is to be found under the ſurface of the inhabitants of any northern region; and hence that ſleeky ſoftneſs of their ſkins ſo often mentioned. If then this excretion is retained from want of due action of the body, there can be no doubt of its accumulating an over-abundance of ammoniacal ſalt in the blood, unleſs carried off by the kidneys. It has been remarked by ſome practitioners, and theſe of no ſmall note, that in ſuppreſſions of urine it is apt to be carried to the brain; and, in diſſections, the urinous taſte has even been diſcovered in the ventricles. Whether the perſpirable matter being of a like nature might do the ſame, is only offered as conjecture; and in ſome meaſure may account for the delirium formerly taken notice of. That there is ſomething, however, peculiar to the cutaneous diſcharge of the Negroes, I muſt ſtill aſſert; and to prove it, let me relate, that I have

ſeen

ſeen perſons, whoſe olfactory nerves were uncommonly delicate, forced to fly from the ſtreet of Kingſton in a market-day to avoid the intolerable effluvia.

That longing deſire for freſh vegetables in ſcurvy is ſo wonderful, that I am ſurpriſed it has not yet been the cauſe of more ſpeculation. And if there was no other argument in favour of a vis medicatrix, or an effort in the ſyſtem to obviate the effects of noxious powers, this muſt be a convincing one; for it dictates the very method of cure. Ripe fruits, that have loſt their acidity, are not deſired with the avidity that green ones are; and this will be the more aſtoniſhing, when I relate the following experiment. Having repeatedly obſerved the ſcorbutic ſlaves throw away the ripe guavas, while they devoured the green ones with much earneſtneſs, I reſolved to try which were moſt effectual in the cure; and accordingly ſelected nine Negroes, affected nearly in a

ſimilar manner with this diſeaſe. To three of them I gave every day limes; to three, green guavas; and to the other three, ripe ones. After they had lived in this way for a week, I was ſurpriſed to find little alteration in thoſe that had taken the ripe guavas, while the other ſix were almoſt well *. Whatever then is that quality of green or aceſcent fruits and vegetables in the cure of ſcurvy, proofs of this kind may not only lead us to a more certain means of relief, but

* While I was a ſurgeon's mate in the Berwick, after the long cruiſe of Sir Charles Hardy's fleet in the Bay of Biſcay at the beginning of the Spaniſh war, when we came to Spithead in September, a few of our raw ſailors were tainted with ſcurvy. As it was not thought neceſſary to ſend them to the hoſpital, they were permitted to go aſhore to the Iſle of Wight, for the benefit of air, exerciſe, and what fruits they could get in the woods, under the command of an old ſeaman, who pretended great ſkill in knowing antiſcorbutic herbs; and it was remarked, that what they uſed were always of the aceſcent kind.

but aſſiſt us alſo in explaining their mode of operation within the body.

This ſingular circumſtance I noted among the Negroes, that during the cure, and from the uſe of the limes, &c. an emaciation always took place, though different in degree. Whether this was owing to any other cauſe than theſe fruits exciting a gentle diarrhœa, I will not pretend to ſay; but about the time that the ſcorbutic ſymptoms diſappeared, the emaciation went no farther: And the ſlaves in this ſituation were allowed a meal extraordinary, to recover their former ſhape for a better market.

Several inſtances are related by Dr Lind, of ſcurvy being known on board of ſhips in harbour, while the crew were living on freſh beef and broth. I have myſelf met with the ſame; and the moſt obſtinate contraction of the ham I ever ſaw, was in a ſailor who had got the complaint while the ſhip was at Spithead. Such caſes, how-

ever, are no detraction from the general rule; and if circumſtances are minutely examined, they will not invalidate my aſſertions. For theſe ſcurvies can almoſt be always traced from ſome taint contracted at ſea, which the ſmall quantity of vegetables taken in had not been able to overcome; and theſe in their turn have always yielded to the eſtabliſhed method of cure. The quantity of greens that is commonly mixed with the ſhips broths is really ſo trifling as ſcarce to deſerve the name.

Whatever credit the learned Dr Milman may have gained for his oppoſition to the doctrine of antiſeptics (and no ſmall ſhare is certainly due to his ingenuity), facts are ſtill againſt him in applying it to the prevention and cure of ſcurvy. In whatever manner the body is affected, or whether or not there is a ſeptic tendency in the fluids, we are well aſſured from univerſal experience, that what generally paſs by the name

of

of antiſeptic remedies, are not only the moſt powerful in the prevention, but the only ones to be depended on in accompliſhing a cure. And though Dr Lind affirms that they act as diuretics and ſudorifics, I muſt ſtill contend, that is only owing to their increaſing the bulk of the fluids from their watery principle.

To account for the whole phenomena of ſcurvy on any principles we are yet acquainted with, muſt be an arduous taſk. But as the new doctrine delivered by Dr Milman, if adhered to, muſt have a dangerous tendency in regard to the prevention and cure; and as it has been conveyed in a more ſpecious train of reaſoning than is commonly met with in medical reſearches, it ſeemed the more neceſſary that it ſhould be ſtripped of this diſguiſe, and expoſed to inquiry. It will be now but juſtice to add, how much Dr Cullen deſerves to be commended, for ſtill retaining the doctrine of

the fluids as the proximate cauſe of ſcurvy, till it can be better accounted for on other principles.

It was my intention to have offered ſomething more on the theory of this diſeaſe; but as my own experience has but partly ſatisfied me, for the preſent I ſhall draw no concluſions from it.

SECT.

SECTION III.

AFTER what ſo many able phyſicians have ſaid on the prevention of ſcurvy, a diſeaſe whoſe cauſes and cure are ſo well aſcertained, it may ſeem aſtoniſhing that it ſhould ſtill be the ſcourge of long voyages and a ſea life. It is allowed, that all diſorders are eaſier prevented than cured; but here it muſt be the more ſo, ſince what is of moſt conſequence in the cure is not always to be commanded at ſea. Every one that has been converſant with the neceſſary duties

ties of a ſailor during the inclemencies of weather and climate, and the few indulgences his ſituation admits of, muſt be convinced that little is to be done in this way towards the preſervation of health. Thoſe means then ought to be put in execution which from our acquaintance with a ſea life can be commanded on all occaſions.

During the late war there have not been wanting many inſtances to prove, that this dreadful diſeaſe ſtill continues to make ravages in our fleets and armies. For the benefit of the public and information of phyſicians, it is much to be lamented ſome plan has not been undertaken to collect the ſcattered obſervations of the phyſicians to the different Marine Hoſpitals and Navy Surgeons, concerning the occurrence of ſcurvy in every ſhip, and under what circumſtances it has been moſt fatal.

We are now convinced the influence of cold and moiſture, on which Lind lays ſo par-

particular a ſtreſs, is not abſolutely requiſite for the production of ſcurvy. What effects the retained perſpirable matter may have in our bodies without the concurrence of ſome other cauſe, has not hitherto been ſpecified. A moderate degree of exerciſe, however, is certainly neceſſary, not only for promoting the excretions of perſpiration and urine, but perhaps for other purpoſes equally important to health. The body being employed from its action on the mind, has the effect of preventing that train of ideas that lead to thought and all the ſedative paſſions which operate ſo powerfully and ſucceſsfully in the production of this diſeaſe. This naturally brings me to lament the horrors that attend the preſent method of recruiting our navy by impreſſing the ſeamen. No deſcription is able to convey an idea of the cruelties with which this part of the ſervice has been attended. Let us only figure to ourſelves a company of ſailors returning from

from a long voyage, after braving all the viciſſitudes of climate and ſeaſon, in ſight of the wiſhed-for port, and feeding themſelves with the expectation of enjoying the ſweets of their labour after ſo long an abſence from their friends, all at once forced and carried on board a ſhip of war, perhaps ordered the next day to a foreign ſtation; where, if the impreſſed ſailor is unfortunate enough to have either reflection or feeling, he falls a victim to the diſeaſe, the havock of which I have been deſcribing, or ſome other equally terrible in its conſequences. Amidſt all the plans of œconomy and reform that have lately taken place throughout the public departments of this country, it ſeems wonderful indeed no happy invention has appeared to produce ſo ſalutary a meaſure as to conſtitute a naval militia: A meaſure that not only muſt ſecure the mercantile concerns of theſe kingdoms from foreign foes, but enſure the mer-

chant from the thoughts of having his property deſtroyed for want of men in time of war to navigate his veſſels.

Another circumſtance highly concerning the health of ſeamen in the recruiting ſervice, is the entering and impreſſing men unfit for any ſpecies of duty on board of a ſhip of war. This inattention, during the late war, by being overlooked, coſt Government anually many thouſand pounds. I have attended ſcurvies at the Royal Hoſpitals, where men have been invalided as unfit for ſervice, after being two or three times diſcharged before in the courſe of twelve months; and, at an average expence each time, they muſt have coſt Goverment from ten to fifteen pounds. This was ſo glaring among the volunteer ſeamen voted by the Iriſh Parliament, that above one thouſand invalids were actually returned to their own country in the ſpace of eight months from our hoſpitals.

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To remedy all this, I would only obſerve, whether it would not be of ſome conſequence to appoint a navy ſurgeon at every port where a regulating captain reſides. A man that has been acquainted with a ſea life, the diſpoſition and health of ſeamen in different climates, is the only member of the faculty fit to be truſted in ſuch an employ.

Before I leave this part of the ſubject, it may not be altogether foreign to the purpoſe to offer ſome remarks on the practice of charging fifteen ſhillings to ſeamen for the pay of venereal cures by the ſurgeons of his Majeſty's ſhips. This will be the leſs exceptionable here, as the effects of ſyphilis have been often complicated with ſcurvy; and the ſcenes of miſery they have together produced, exhibited views of the utmoſt wretchedneſs in both our ſhips and hoſpital. I hope, however, from what I am about to inculcate, that no one will ſuppoſe I

wiſh to introduce innovations to the ſervice that could tend to ſpread filth and diſeaſe, or deſtroy health and every ſpecies of virtue and morality in our ſhips of war. I ſhall only attempt to ſhow, that the preſent method of conducting the ſervice in this particular is abſolutely deſtructive to the health of ſeamen, and inconſiſtent with every generous principle and liberality of ſentiment that have ever diſtinguiſhed a Britiſh government.

Since the introduction of the venereal diſeaſe to Europe, it has in a peculiar manner been the ſcourge of the profeſſion of arms. The roving life of the ſailor and ſoldier has ſingularly ſubjected them to its virulence; and the difficulty of cure, as it was till lately thought to be, induced the ſurgeons of his Majeſty's navy to petition the Board of Admirality for ſome perquiſite annexed to their office for every cure on ſhip-board; which the King in council ordered to be paid out of the ſeaman's wages.

Why

Why the purſe of the poor ſailor ſhould be ſcourged for his iniquities, I know not; or why, in a moral ſenſe, he ſhould not as well pay for getting drunk and wounding himſelf. If ever it was meant to curb the deſires of the ſailor, it certainly has failed in the intention.' That fifteen ſhillings for a venereal cure ever prevented a ſailor from indulging his pleaſures, none converſant with their diſpoſition will admit; but that it will prevent them from applying for relief till they can do no better, melancholy proofs may be produced. When we conſider how ſimple the method of cure of every venereal complaint is when taken at its firſt appearance, and how little is to be done in the advanced ſtage of that diſeaſe on board of a ſhip while the ſailor is obliged to live on ſalted proviſions, and expoſed to all the inclemencies of weather and ſeaſon; it will readily be allowed, that the cure by theſe means may become worſe than the

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diſeaſe *. Hence thoſe diſorders ſo frequent to Engliſh ſeamen in warm countries and long voyages from a worn-out conſtitution, and that rotten old age ſo early to be found among them.

Some of theſe hints were laid before the Society of Navy Surgeons at Plymouth three years ago; and as an equivalent for the ſurgeons giving up this perquiſite, it was propoſed, that government ſhould increaſe the half-pay to the ſenior ſurgeons, and put the whole number on the half-pay liſt. It would at the ſame time be the means of removing ſome ungenerous aſperſions that have fallen on the medical character in the navy; and was it neceſſary to ſhow that theſe animadverſions are not built on mere ſpeculation, I can bring facts innumerable to atteſt the neceſſity of altering a cuſtom ſo

* The deſtructive effects of mercury in ſcurvy have been long known to our navy ſurgeons.

incompatible with humanity, and the health of ſo valuable a part of ſociety.

I hope it has been ſufficiently proved, that the occurrence of ſcurvy at ſea is owing to a diet of ſalted proviſions; and therefore to prevent it, we muſt either ſubſtitute another in its place, or provide the ſeamen with ſomething capable of correcting the hurtful qualities of this kind of food.

For the prevention of ſcurvy, our navy is at preſent ſupplied with elixir of vitriol, ſour krout, and eſſence of wort. The firſt of theſe, recommended by the late Dr Huxham, has been a long time uſed; and it ſeems to have been introduced to practice from that deſire for acids congenial to the diſeaſe. But we are ſtill left to doubt of any effects the elixir of vitriol poſſeſſes in the cure of ſcurvy. And, indeed, while we hold ſome fault of the blood to be the proximate cauſe, the diſappointment need not excite our wonder, ſince it is incapable of

of being converted into animal fluids. Had that debility of the digeſtive powers been preſent, which Dr Milman alleges, from the conſent the ſtomach has with the reſt of the ſyſtem, it muſt have been a powerful medicine. The ſame reaſoning may alſo be applied to our diſappointment of the effects of the cortex Peruvianus: If the patient at the attack of ſcurvy was ſick or convaleſcent, bark, as being the moſt powerful tonic, has always been joined with what are called *antiſcorbutics;* and in theſe caſes alone, it ſeems to have been given with ſucceſs. The cortex given by itſelf, from the authority of all practitioners, has never done much here; which is to be imputed to its exerting its powers on the nerves of the ſtomach, and not in the circulation.

Our ſhips of war were firſt ſupplied with ſour krout from the recommendation of Dr Lind after the faſhion of the Dutch navy. But if it had poſſeſſed any great antiſcor-

butic properties, our ſhips have never been ſupplied with it in quantities equal to the purpoſe. And I am apt to believe there is very little of that quality in this preparation of cabbage which we value for the prevention or cure of ſcurvy. On opening the caſks which hold the krout, an effluvia flies off, which is ſo intolerable as to ſmell fetid and diſagreeable at many yards diſtance: a proof that it has partly undergone the putrefactive fermentation; beſides, it may be hurtful from the ſalt it contains: and I apprehend it would be advantageouſly ſuperſeded by ſome other preparations hereafter to be mentioned.

The eſſence of wort and infuſion of malt, among the liſt of antiſcorbutics, are indebted to the ingenious Dr Macbride for the praiſe that has been beſtowed on them. Perhaps their virtues are more to be truſted in the prevention than cure of ſcurvy; and for both they fall ſhort of the intention of the benevolent author. Captain Cooke found the

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eſſence of wort unable to cure the advanced ſtage of ſcurvy; which was alſo confirmed from trial by Dr John Clarke when ſurgeon to the Talbot Eaſt Indiaman. Our ſhips of war are now ſupplied with it at a very great expence; and when ſerved to the ſailors, they are deprived of their grog or wine, if the beer is done: a circumſtance not favourable to its being duly taken. I have repeatedly ſeen the wort given in great quantities; and though it ſeemingly retarded the progreſs of the diſeaſe, I doubt much if it deſerves half the applauſe that has been beſtowed on it to accompliſh a cure.

To the laſt mentioned articles comes next in rotation the celebrated aërial acid. But, notwithſtanding the boaſted effects of fixed air in the cure of ſcurvy, it is highly probable they are ſtill greater in ſpeculation than practice. Perhaps no medicine whatever was uſhered into repute under the ſanction of ſuch repeated plaudits as the aërial

acid; and ſome of its abettors have even gone ſo far as to hazard probability in its praiſe, in applying it to the cure of ſuch numerous diſorders. Several inſtances are given of its producing a cure of ſcurvy on ſhore; but we are not well informed what kind of diet and regimen was ordered to the patient at the ſame time: and authors are too apt, on certain occaſions, to attribute to a favourite medicine, in theſe circumſtances, what really had no ſhare in producing the effect. The power it poſſeſſes of ſweetening freſh water is ſo far in its favour; but if we are to truſt to fixed air at ſea, and forget other precautions, I ſuſpect ſo dangerous a miſtake may be productive of the worſt conſequences. Whatever experiments are made out of the body to aſcertain the antiſeptic qualities of this acid, are as little to be truſted in practice as all others: But, while ſo many have extolled the virtues of this anti-ſcorbutic, our ſea-ſurgeons have been ſilent

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on the ſubject. It is moſt likely ſo ſimple a relief, and one that can be commanded on all occaſions, has not anſwered the eulogiums confered on it, otherwiſe we muſt have heard of its ſucceſs. In all the trials I have made of it, I was ſo early diſappointed, as to lay it aſide altogether; and from all the inquires I have made among my acquaintance, this has been the reſult of the uſe of fixed air in the navy.

During the late war a remedy has been made uſe of, called the *earth bath*. A hole is dug in the earth, and the patient is covered up to the chin, where he remains for the ſpace of half an hour. This hint was taken from ſailors burying their limbs in the ſand when ſent on ſhore for the benefit of air and exerciſe. For the contraction of the ham it has been particularly recommended; but when tried without the uſe of vegetables at the ſame time, it has only amuſed.

Having now ſhown, that the preſent method of ſupplying our ſhips of war with preventatives againſt the ſcurvy is not to be truſted on all occaſions, it remains for me to recommend ſome that are likely to prove effectual.

In the firſt place, it is much to be wiſhed that the commanders of his Majeſty's ſhips, on a man of war going to ſea, and till ſhe returns to port, ſhould order the allowance of beef and pork to be diminiſhed. The good effects of this cuſtom are too well known to be further inſiſted on. An officer, with a ſurgeon's mate, ought to inſpect the mixing of the bargou every morning, taking care that a ſufficient quantity of molaſſes is added to make it palatable. The want of this neceſſary piece of attention has, I believe, been the chief cauſe why ſo little of this part of a ſea-diet has been made uſe of: and beſides its containing a large proportion of vegetable matter, the quantity

tity of water taken with it may be of ſome conſequence.

To correct a ſalted diet, inſtead of ſour krout, I would recommend pickles of onions, red cabbages, cucumbers, &c.; theſe, as coſting the ſailor no trouble in preparing, and as being ſavory when taken with ſalt beef and pork, are likely to be uſed with pleaſure. Another valuable article I could wiſh to ſee introduced as a part of our ſeamens diet on certain ſtations is, gooſeberries, preſerved in the ſame manner as for culinary purpoſes. Half a pound of theſe berries, ſerved two or three times a-week and on beef days, is a meaſure likely to have ſome effect. If theſe berries are gathered about the end of June before they grow ſweet, and properly prepared afterwards, they may keep for years in any climate, while the expence is too trivial to be conſidered for ſo valuable a purpoſe.

To add ſtill further to this part of a ſeaman's

man's diet, it would certainly be a moſt eligible method to convert the grog into punch. This can always be eaſily accompliſhed, by coarſe ſugar and lemon-juice, or cream of tartar. Grog is never ſerved to a ſhip's company till the beer is drunk out, by which time the water is generally in ſhort allowance, and often putrid, which loudly calls for the propriety of ſuch alteration.

Although the juice of lemons and limes is ſo well known a remedy in ſcurvy, it is ſtill doubted if any preparation we can carry to ſea preſerves their virtues entire. Captain Cooke found the inſpiſſated juice, as procured by evaporation, and recommended by Dr Lind, of little or no efficacy in the cure of this diſeaſe. But I verily believe this may be accounted for: beſides the water carried off by vapour from this preparation, we know not what other changes it may undergo by heat; and it likely by that means loſes what we would moſt value it for.

for. It remains therefore for us to find a method of preſerving the fruits, or their juice, as nearly as poſſible to their native ſtate. For this purpoſe, having ſqueezed a ſufficient number of lemons, I ſtrained the juice through a linen cloth, and put it into quart bottles, covering it with a little olive oil; then corking the bottles ſecurely, ſo as perfectly to exclude the air. It was ſet in a cool place of the ſhip; and after fourteen months keeping on the coaſt of Africa, was given to ſome ſcorbutic ſlaves with the ſame ſucceſs as freſh limes: its acid taſte was perfectly entire; and punch made from it was not diſtinguiſhed from the new lemon. So that difficulties in preſerving this juice for any length of time are very frivolous: And perhaps thoſe who have the immediate direction of the victualing our navy, may one day think ſuch a plan no inconſiderable addition to the preſervation of the health of our ſeamen in long voyages.

When

When our ſhips are ſtationed in tropical countries, they may at all times command theſe fruits for a trifle; and when we conſider how eaſily they may be procured, we may well wonder our ſeamen have not been liberally ſupplied with them at the expence of government. The biſcuit in theſe latitudes ſoon ſpoils, and becomes full of maggots and weevils, which certainly render it unwholeſome: and would not this bread be well ſuperſeded by freſh plantains and yams, which are by many preferred even to new bread in the Weſt Indies. Theſe articles would not coſt above half the expence that the biſcuit does in England; and they would be of the more importance, as meals of freſh beef are ſeldom or never met with in the Weſt Indies on board of our ſhips of war.

The influence of cold and moiſture, as already mentioned, ſeems to deſerve leſs attention than has been beſtowed on them;

as

as it has made us look for aſſiſtance in the prevention of ſcurvy from methods incompatible with the duty and life of a ſailor: it will, however, be always prudent to avoid them if poſſible. Had Dr Milman ſearched for the true cauſe why petty officers are leſs ſubject to ſcurvy than the ſeamen, he would have found it much more owing to a difference of diet than any other mode of living whatſoever.

People recovering from ſickneſs on board of a ſhip, ought not to uſe the common ſea fare till fairly re-eſtabliſhed in health. The quantity of portable ſoup given to each ſhip has always been a ſufficient allowance; and if a ſmall proportion of barley, ſhallots, or garlic, as ſupplied among the ſurgeon's neceſſaries, is added, they can always have a comfortable ſubſiſtence. In addition to theſe articles of diet for ſcorbutics and convaleſcents, I would beg leave to recommend a meſs of flummery, or *ſowens*, as it is called

ed in Scotland, where it is moſt uſed. It is made of oat-meal, which, with water, undergoes a ſlight degree of fermentation; it is then ſtrained, and boiled to a certain conſiſtence, ſtirring it all the while. By mixing with this preparation a ſmall quantity of wine and ſugar, or molaſſes, it can be made a diſh fit for the moſt delicate palates. During the late war, ſowens have been faſhionable in many of our ſhips; and ſome of the moſt diſtinguiſhed commanders, as an example to the men, have conſtantly uſed them for a ſea ſupper. If the manner of preparing them in this way on board of a ſhip ſhould be diſagreeable, officers and others may have them made on ſhore, and put up in a portable form. When the groſſer parts of the oat-meal are ſeparated, the fine farina falls to the bottom of the veſſel, from which the water may be evaporated and formed into cakes, which ought to be preſerved in cloſe caſks,

and kept dry. To a pound of this preparation may be added three or four times as much water, and boiled to the conſiſtence of jelly.

A particular care in the prevention of ſcurvy is to be taken in our tranſports carrying troops abroad; and they ought to be well provided with every article for that purpoſe. This is the more neceſſary, as theſe veſſels are always much crowded, naſty, and ill-aired; but what is ſtill adding more to the urgency of theſe precautions, is, that the raw ſoldiers, being unaccuſtomed to ſea, are the firſt ſufferers from a ſalted diet. This is ſadly proved, from the mortality among troops on board of tranſport ſhips, lying for a long time before beſieged garriſons, and in long paſſages to our different ſettlements.

I ſhall now conclude, with offering ſome remarks on the means of preventing ſcurvy among

among the Negroes on board of the African merchantmen.

The moſt knowing in this trade are aware of how much conſequnce it is to complete their purchaſes as ſoon as poſſible; therefore a ſhip to carry from three to four hundred ſlaves muſt be preferable to one larger, as leſs endangering the health of the cargo from lying too long on the coaſt with the Negroes on board. The diet ought to be rather ſpare than otherwiſe; at leaſt to thoſe who are in good condition. Ships in the road at the time we were purchaſing our cargo had their ſlaves as long on board; but by giving them leſs victuals, preſerved them healthy and free from ſcurvy. This ſpare diet ſhould be continued till they are about to leave the coaſt, when it may be increaſed; and the utmoſt attention is to be paid to its quality. The corn rooms are to be frequently inſpected, and kept as airy as poſſible. The corn, during the day, ought

to be carried upon deck, to prevent its growing damp and mouldy. Guinea pepper may be mixed with their food in any quantity; it is the natural condiment of this kind of food, and may obviate a number of complaints, ſuch as gripes, purgings, &c. which are oftener owing to diet than any other cauſe. Palm oil is alſo uſed in great quantities by the inhabitants of Guinea; and as being nearer of an animal nature, is of infinite ſervice to aſſimilate all vegetable food. The fruits of the climate, whenever they can be procured, ought to be freely diſtributed among them *. Of how much

* When a ſhip leaves the coaſt, ſhe ought to be well provided with all the fruits in ſeaſon. The paſſage of a Guineaman to the Weſt Indies is ſeldom ſo long, but limes and oranges may be preſerved all the way; but if there is danger of them ſpoiling, the juice can be preſerved, as formerly directed. There are many inſtances of ſhips in this trade, where, from ſcarcity of water in unavoidable long paſſages, the ſcurvy proved

conſequence due exerciſe is in preſerving a healthy cargo of ſlaves, the want of it has duly ſhown. There ſhould therefore be no more of them in irons than the abſolute ſafety of the ſhip requires; and the whole of them are to be danced on the deck to the ſound of a drum, of which they are very fond, for an hour twice in the day. Small windſails ought to be uſed for the better airing of the rooms; and by trimming them to the wind occaſionally, they will be of more ſervice than air ports, which are always ſhut at ſea, when there is moſt need of them. Cleanlineſs is another object, and of no leſs importance: the rooms ought to be well waſhed twice a-week, and well dried with fires while the ſlaves are upon deck. The ſlaves ſhould alſo be ordered to keep their

I ſkins

deſtructive to the ſlaves, when a few caſks of lime juice might have ſaved them. Such was the caſe of the Molly, Kendal, as I have been informed by Mr Grogan, an ingenious medical gentleman then in that ſhip.

ſkins clean, by waſhing themſelves as they come upon deck in the morning: and if all theſe precautions are duly attended to, this fatal diſeaſe will ſeldom be met with in a Guineaman.

FINIS

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